

## 101. NUCLEAR IMPORT PROTEINS DISPLAY DISTINCT EXPRESSION PATTERNS DURING SPERMATOGENESIS

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Spermatogenesis requires a precisely ordered sequence of gene expression changes within the male germ cell. Transcription factors (TFs) and nuclear proteins transit between the nucleus and cytoplasm to mediate these functional changes and thereby direct differentiation. We hypothesised that changes in TF function would be accompanied by changes in the proteins that bring them into the nucleus. We investigated the expression of two nuclear import proteins, importins  $\beta 1$  and  $\beta 3$ , during fetal and postnatal development of mouse male germ cells by *in situ* hybridisation and immunohistochemistry. Importin  $\beta 1$  mRNA and protein were observed in mitotic germ cells from 12.5 dpc to adulthood. Importin  $\beta 3$  signals were detected in mitotic and quiescent gonocytes in fetal and neonatal testis, and in the mitotic spermatogonia of the neonate. However, in contrast to importin  $\beta 1$ ,  $\beta 3$  was synthesised exclusively in post-mitotic germ cells of adult testis. Examination of male and female fetal gonads revealed that these importins move between the nucleus and cytoplasm in gender and age-specific patterns. These data suggest that the mitotic and meiotic germ cells employ distinct sets of nuclear transport proteins, and this is likely to reflect developmentally regulated shifts in the requirement for transport of proteins into the nucleus.